1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

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8. (Cancelled)

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (Cancelled)

22. (Cancelled)

23. (Cancelled)

24. (Cancelled)

25. (Cancelled)

26. (Cancelled)

27. (Previously Presented) A method for determining a number of receptors on a carrier, comprising the steps of:

preparing a carrier;

immobilizing at least one receptor on the carrier, where the at least one receptor interacts with a ligand to form a receptor-ligand complex;

after immobilization of the at least one receptor on the carrier, bringing a marker in contact with the receptor to form a receptor-marker complex with separable binding between the receptor and the marker; and

determining the number of the receptors on the carrier by detecting the receptor-marker complexes;

where the receptor-marker complexes are detected independently of the receptor-ligand complexes.

28. (Previously Presented) The method of claim 27, further comprising the step of:

(i) bringing the receptor in contact with a test sample and examining the test sample for its content of ligands.

29. (Previously Presented) The method of claim 28, further comprising the step of:

(ii) following step (i), detecting the receptor-ligand complexes.

30. (Previously Presented) The method of claim 27, where the carrier is a semiconductor having a surface formed of a material, where the material comprises silicon, a semimetal oxide, or aluminum oxide.

31. (Previously Presented) The method of claim 27, where the receptor comprises antibodies including monoclonal or polyclonal antibodies and functional fragments thereof, proteins, oligo- and polypeptides, nucleic acids including DNA, RNA, cDNA, PNA, oligo- and polynucleotides, or saccharides including mono-, di-, tri-, oligo-, and polysaccharides.

32. (Previously Presented) The method of claim 27, where a binding between the receptor and the ligand in the receptor-ligand complex is separable.

33. (Previously Presented) The method of claim 27, where a binding between the receptor and the ligand in the receptor-ligand complex has a fluorescence half-life measured in nanoseconds.

34. (Previously Presented) The method of claim 27, where on average there are an equal number of the markers and the receptors.

35. (Previously Presented) The method of claim 27, where the marker comprises reactive groups.

36. (Previously Presented) The method of claim 27, where the marker comprises a luminescent dye, a chemoluminescent dye, a photoluminescent dye, or a bioluminescent dye.

37. (Previously Presented) The method of claim 27, where the marker comprises a fluorescent dye from the group that comprises a fluorochrome, a rhodamine, or tetramethylrhodamine isothiocyanate.

38. (Previously Presented) The method of claim 27, where the receptor comprises inherent fluorescence.

39. (Previously Presented) The method of claim 38, where the inherent fluorescence is provided by amino acid tryptophan.

40. (Previously Presented) The method of claim 38, where the binding between the receptor and the marker in the receptor-marker complex has a fluorescence half-life measured in nanoseconds.

41. (Previously Presented) The method of claim 27, where the receptor-marker complex includes fluorescence resonance energy transfer.

42. (Previously Presented) The method of claim 41, where the fluorescence of the fluorescence resonance energy transfer is modified by an interaction of the ligand with the receptor.

43. (Previously Presented) The method of claim 41, where the receptor has a donor and an acceptor of the fluorescence resonance energy transfer.

44. (Previously Presented) The method of claim 41, where the fluorescence is produced by a donor and the fluorescence is quenched by an acceptor.

45. (Previously Presented) The method of claim 41, where the ligand acts as a donor of the fluorescence resonance energy transfer.

46. (Previously Presented) The method of claim 41, where the ligand brings a donor and an acceptor of the fluorescence resonance energy transfer directly into contact.

47. (Previously Presented) The method of claim 41, where the ligand is fluorescence-labeled.

48. (Previously Presented) The method of claim 27, where the marker is a microparticle.

49. (Previously Presented) A method for determining a number of receptors, comprising the steps of:

preparing a semiconductor carrier;

immobilizing at least one receptor on the carrier, where the at least one receptor interacts with a ligand to form a receptor-ligand complex;

after immobilization of the at least one receptor on the carrier, bringing a marker in contact with the receptor to form a receptor-marker complex with separable binding between the receptor and the marker; and

determining the number of receptors on the carrier by detecting the receptor-marker complexes;

where the receptor-marker complexes are detected independently of the receptor-ligand complexes, and where the marker comprises a dye.

50. (Currently Amended) A method for determining a number of receptors on a carrier, comprising the steps of:

immobilizing a receptor on the carrier;

after the immobilizing step, bringing a marker in contact with the receptor to form a receptor-marker complex with separable binding between the receptor and the marker;

detecting the receptor-marker complexes; and

determining the number of the receptors on the carrier from the detected receptor-marker complexes.

51. (Previously Presented) The method of claim 50, comprising preparing the carrier prior to the step of immobilizing.

52. (Cancelled)

53. (Cancelled)

54. (Previously Presented) The method of claim 50, further comprising bringing the receptor in contact with a test sample, examining the test sample for its content of ligands, and detecting receptor-ligand complexes.